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(54) **Oven with lighting system**

Ofen mit Beleuchtungssystem

Four avec système d'éclairage

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Description

TECHNICAL FIELD

[0001] The present invention relates to an oven with an improved lighting system.

[0002] Particularly, the present invention finds application in pyrolytic ovens.

BACKGROUND OF THE INVENTION

[0003] Pyrolytic ovens are known in the art. In this particular type of ovens, an interior cleaning cycle may be initiated, which utilizes high temperature to reduce any organic residue in the cooking chamber of the oven.

[0004] The maximum temperatures attained during a cleaning cycle may exceed 450 °C. Therefore all the components in the proximity of the cooking chamber of the oven are exposed to high thermal stress.

[0005] Interior lighting is also a common feature of ovens, as it allows constant monitoring of food cooking degree.

[0006] A third common need is related to power savings, which has caused LEDs to become increasingly popular as lighting devices. An example of a traditional oven using LEDs for lighting the cooking chamber is given by document EP 2336644.

[0007] Nevertheless, LEDs have a poor resistance to high temperatures: therefore, LEDs have never been used instead of normal incandescent lamps (which can withstand temperatures even higher than those reached inside ovens) that have been hitherto used for interior lighting of pyrolytic ovens.

[0008] In view of the above prior art, the object of the present invention is to provide an oven having a LED lighting device.

[0009] Furthermore, the present invention affords advantages in terms of simple fabrication, greater strength, more compact design and/or higher versatility.

SUMMARY OF THE INVENTION

[0010] According to the present invention, this object is fulfilled by an oven as defined in claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The characteristics and advantages of the present invention will appear from the following detailed description of one practical embodiment, which is illustrated without limitation in the annexed drawings, in which:

- Figure 1 is a diagrammatic view of the door of an oven of the present invention,
- Figure 2 shows another diagrammatic view of the door of Figure 1.
- Figure 3 is a sectional view of the door of Figure 1,
- Figures 4 and 5 show further diagrammatic views of the door of Figure 1,
- Figure 6 is a view of an oven of the present invention with the door being omitted,
- Figure 7 is a view of the oven of Figure 6, with the door in the open position.

DETAILED DESCRIPTION

[0012] Although this is not expressly shown, the individual features described with reference to each embodiment shall be intended as auxiliary and/or interchangeable with other features, as described with reference to other embodiments.

[0013] As used herein, the directions "up/down", "forward/backward", "left/right", in pairs and individually, are related to a user in front of the oven, in an ordinary position of use thereof.

[0014] Referring to the figures, numeral 1 generally designates an oven of the present invention. In one aspect of the invention, the oven 1 may be a pyrolytic oven.

[0015] The oven 1 comprises a frame 4 which defines a cooking chamber 3. The frame 4 has a front opening 46 for access to the cooking chamber 3.

[0016] In accordance with one embodiment, the frame 4 has a base wall 41, two side walls 42, 44, a top wall 45 and a back wall 43. As shown in the figures, the front opening 46 is located opposite to the back wall 43.

[0017] The frame 4 also has a top opening 5 and a bottom opening 6 for air passage, whose purpose will be described in greater detail hereinbelow.

[0018] The devices that allow operation of the oven, including the heating system and/or the ventilation system (not shown) are advantageously located in the frame 4.

[0019] The oven 1 further comprises a door 2, which is connected in an articulated fashion to the frame 4 and is adapted to move between an open position, to allow access to the cooking chamber 3 and a closed position, to close the front of the front opening 46 and prevent access to the cooking chamber 3.

[0020] According to one embodiment, the door 2 is hinged at the bottom to the frame 4, in this example via articulation means, generally referenced 7.

[0021] The door 2 comprises a support structure 21, which supports a plurality of panels, generally referenced 22. Particularly, the plurality of panels 22 comprises an outer panel 22a, an inner panel 22d and at least one intermediate panel between the inner panel 22d and the outer panel 22a. In this example, there are two intermediate panels, referenced 22b and 22c.

[0022] In a pyrolytic oven, there are advantageously two intermediate panels.

[0023] The panels 22 are arranged to define respective cavities, generally referenced 23, therebetween. In this example, the cavity 23a is defined between the panel 22a and the panel 22b, the cavity 23b is defined between the panel 22b and the panel 22c, and the cavity 23c is

defined between the panel 22c and the panel 22d.

[0024] In this example, the panels 22 are arranged parallel to one another and parallel to the plane defined by the support structure 21.

[0025] Advantageously, the panels 22 are made of a reflective material, to reduce the absorbed amount of heat radiated by the cooking chamber 3.

[0026] In one embodiment, at least one of the panels 22, preferably all of them, are transparent, semi-transparent or partially transparent, for a user to see therethrough.

[0027] Generally, the outermost panel 22a substantially defines the outer surface of the door 2 of the oven 1, and the innermost panel 22d substantially defines the inner surface of the door 2.

[0028] The support structure 21 of the door 2 comprises two posts 24, 25, which define the right and left sides of the door 2; the lower side is constrained by hinges, thereby allowing the opening and closing movements of the door 2.

[0029] Therefore, each cavity 23 is defined at its sides by two posts 24, 25 of the support structure 21 and is open at its top and bottom so that, when the door 2 is in the closed position, the top and bottom openings of the cavity face the top and bottom air passage openings 5, 6 of the frame 4.

[0030] Thus, an air flow is created in each cavity 23, which flow enters the cavity from the bottom opening and exits the upper opening and picks up part of the heat from the panels that defines the cavity as it flows therethrough, thereby cooling them.

[0031] At the top, a closing grid 35 extends between the two posts 24, 25, and allow air to flow into the cavities 23.

[0032] In one embodiment, the oven 1 comprises ventilation means 50 which can increase the air flow through each cavity 23, thereby optimizing efficiency of heat extraction from the panels 22.

[0033] The ventilation means 50 may be located either downstream from the top opening, to suck in air therethrough and generate the air flow into the cavities 23 or upstream from the bottom opening to generate a delivery flow to the opening and into the cavities 23.

[0034] Each of the posts 24, 25 comprises a support for one or more panels 22; particularly the two posts 24, 25 together define a support for all the intermediate panels 22b, 22c, i.e. those that define, with the outer panels 22a, 22d, the cavities 23 of the door 2.

[0035] For example, the post 24 may comprise seats 24a, 24b having the same size as the panels 22, and adapted to receive and support the panels 22. Opposed seats 25a, 25b are defined in the post 25.

[0036] In this example, the seats 24a and 25a are located in the lower portion of their respective posts, and the seats 24b and 25b are located in the upper portion of their respective posts.

[0037] In order to avoid failures caused by internal stresses generated by failed compensation for any thermal expansion, the seats 24a, 24b of the post 24 are spaced from the opposed seats 25a, 25b of the post 25, at a distance that is slightly greater than the width of the intermediate panels 22b, 22c, between the two posts 24, 25, thereby allowing the intermediate panels 22b, 22c to smoothly slide in the horizontal direction X-X perpendicular to the vertical direction Y-Y. Thus, the intermediate panels 22b, 22c gave some clearance between the two posts 24, 25.

[0038] As shown, the seats 24a, 24b are formed on the side of the post 24 that faces the interior of the door 2, i.e. the other post 25. Preferably, at least one of the seats 24a (but preferably all of them) substantially has a U shape, to prevent any movement of the panel 22 except a sliding movement on its own plane.

[0039] The post 24 comprises a longitudinal support 26 which substantially extends between the lower end and the upper end of the door 2 and a transverse support 27 which is coupled, e.g. by way of interlocking or form-fit engagement, to the longitudinal support 26, and overhangs toward the interior of the door 2 in the direction of the longitudinal support 28 and the transverse support 29 of the post 25.

[0040] The seats 24a, 24b are formed in the transverse support 27, and the seats 25a, 25b are formed in the transverse support 29.

[0041] Advantageously, the post 24 has a flat or substantially flat side facing the interior of the door 2. For instance, such flat side may be the inner side of the longitudinal support 26.

[0042] Thus, each intermediate panel 22b, 22c may define a substantially continuous interface between two adjacent cavities 23. Nevertheless, it will be apparent from the above that some residual clearance may exist between each intermediate panel 22b, 22c and its posts 24, also depending on the temperature of the intermediate panel 22b, 22c and hence its expansion.

[0043] This residual clearance may cause increased heat exchange between two adjacent cavities 23, for reasons to be further clarified below.

[0044] In view of further decreasing heat exchange, a temperature-resistant sealant may be provided, or the door 2 may be designed for the influence of such heat exchange to be substantially lower than the overall heat exchange between two adjacent cavities 23.

[0045] For example, the residual clearance when the door 2 is at ambient temperature may be of less than about 5 mm at each side, preferably less than about 3 mm, for instance about 2 mm.

[0046] The transverse support 27 may be made of a heat-resistant material, for instance a polymeric material, preferably reinforced with glass fibers.

[0047] The longitudinal support 26 may be also made of a heat-resistant material, for instance of one piece with the transverse support 27, or of metal. According to the invention, the longitudinal support 26 is hollow and has an inner channel 26a open at its bottom and top and having respective bottom and top openings 26b, 26c

which, with the door 2 in the closed position, face the bottom and top openings 6, 5 of the frame 4 of the oven 1 for air to flow therethrough and extract the heat absorbed by the longitudinal support 26.

[0048] If the longitudinal support 26 is made of metal, a heat insulating material may be placed in the lower portion of the door 2 between the inner panel 22 and the longitudinal support 26, to reduce the amount of heat transferred to the longitudinal support 26.

[0049] The door 2 further comprises LED supporting means 30 connected to the support structure 21 and LED lighting means 40 mounted to the LED supporting means 30, to direct the light beam generated thereby to the interior of the cooking chamber 3, when the door 2 is in the closed position. The LED lighting means 40 are placed in the cavity 23a formed between the outer panel 22a and the intermediate panel 22b adjacent to the outer panel 22a. The particular configuration of the cavities 23, particularly the cavity 23a, allows the heat radiated by the cooking chamber 3 to be effectively removed from the panels 22 and the chamber 23a to reach temperatures of less than 80°C, and be thus able to accommodate LED lighting means having commercially available LEDs. According to the invention, the LED supporting means 30 are connected to the longitudinal support 26 and include an angular structure 31 having a portion 32 for attachment to the longitudinal support 26 and a portion 33 for supporting the LED lighting means 40.

[0050] The angular structure 31 extends parallel to the longitudinal support 26 in the direction Y-Y along at least one portion of the length of the longitudinal support 26.

[0051] Advantageously, the LED lighting means 40 are arranged along the angular structure 31 over a portion thereof, particularly to about 75% of the longitudinal length of the longitudinal support 26. The LED lighting means 40 should not be located in the upper portion of the longitudinal support 26, where heat cannot be effectively removed.

[0052] In this example, the angular structure 31 has a substantially triangular shape, with a first side defining the attachment portion 31, arranged parallel to the inner side of the longitudinal support 26, a second side defining the support portion 32, which is inclined relative to the first side to direct the light beam generated by the LED lighting means 40 to the interior of the cooking chamber 3 when the door 2 is in the closed position, and a third side that connects the two sides 31, 32 and is placed parallel to the panel 22a,

[0053] In one embodiment, the LED supporting means 30 and the LED lighting means 40 are in such positions that, when the door 2 is in the closed position, they are at least partially external to an ideal extension of the cooking chamber 3 beyond the front opening 43. Thus, the LED supporting means 30 and the LED lighting means 40 are in such positions that the heat radiated from the cooking chamber 3 only partially impinges upon them.

Claims

1. An oven (1) comprising:

- a frame (4) defining a cooking chamber (3), said frame (4) having a front opening (46) for access to the cooking chamber (3) and a top opening (5) and a bottom opening (4) for air passage,
- a door (2), which is mounted in an articulated manner to said frame (4) and is adapted to move between an open position, to allow access to the cooking chamber (3) and a closed position, to close the front opening (46) and prevent access to the cooking chamber (3),
wherein said door (2) comprises a support structure (21) which supports an outer panel (22a), an inner panel (22d) and at least one intermediate panel (22b, 22c) between the outer panel (22a) and the inner panel (22d), said panels (22a-22d) being so arranged as to define respective cavities (23a, 23b, 23c) therebetween, each cavity being defined laterally by the support structure (21) and being open at its top and bottom so that, when the door (2) is in the closed position, the top and bottom openings of the cavity face the top and bottom air passage openings (5, 6) of the frame (4),
- LED supporting means (30) connected to the support structure (21),
- LED lighting means (40) mounted to the LED supporting means (30) to direct the light beam generated thereby to the cooking chamber (3), when the door (2) is in the closed position, wherein the LED lighting means (40) are placed in the cavity (23a) formed between the outer panel (22a) and the intermediate panel (22b) adjacent to the outer panel (22a),
- said support structure (21) comprises two posts (24, 25), each cavity being defined at its sides by said two posts (24, 25), each post (24, 25) comprising respective opposed seats (24a, 24b, 25a, 25b) for receiving and supporting the panels,
- each post (24, 25) comprises a longitudinal support (26, 28) which substantially extends between the lower end and the upper end of the door (2) and a transverse support (27, 29) which is coupled to the longitudinal support (26, 28), and overhangs toward the interior of the door (2) in the direction of the longitudinal support (28) and the transverse support of the other post, said seats (24a, 24b, 25a, 25b) being formed in their respective transverse supports (27, 29),
- said longitudinal support (26, 28) is hollow and has an inner channel (26a) open at its top and its bottom, with respective top and bottom openings (26b, 26c) which, when the door (2) is in

the closed position, face the top (5) and bottom (6) openings of the frame (4),

characterized in that said LED supporting means (30) are connected to the longitudinal support (26) and comprise an angular structure (31) having a portion (32) for attachment to the longitudinal support (26) and a portion (33) for supporting the LED lighting means (40).

2. An oven as claimed in claim 1, wherein the seats (24a, 24b) of a post (24) are spaced from the opposite seats (25a, 25b) of the other post (25) at a distance slightly larger than the width of the intermediate panels (22b, 22c) between the two posts (24 25), so that the intermediate panels (22b, 22c) have some clearance between the two posts (24, 25).

3. An oven as claimed in claim 2, wherein said intermediate panels (22b, 22c) have a clearance of less than about 5 mm at each side, preferably less than about 3 mm, more preferably about 2 mm, at ambient temperature.

4. An oven as claimed in claim 1, wherein said angular structure (31) extends parallel to the longitudinal support (26) along at least one portion of the length of the longitudinal support (26).

5. An oven as claimed in claim 1 or 2, wherein said LED lighting means (40) are arranged along the angular structure (31) over a portion of said angular structure (31).

6. An oven as claimed in any claim from 2 to 5, wherein said angular structure (31) has a substantially triangular shape, with a first side defining the attachment portion (31), arranged parallel to an inner side of the longitudinal support (26), a second side defining the support portion (32), which is inclined relative to the first side to direct the light beam generated by the LED lighting means (40) to the interior of the cooking chamber (3) when the door (2) is in the closed position, and a third side that connects the first and second sides (31, 32) and is placed parallel to the outer panel (22a).

7. An oven as claimed in any claim from 1 to 6, wherein said LED supporting means (30) and said LED lighting means (40) are in such arrangement that, when the door (2) is in the closed position, they are at least partially external to an ideal extension of the cooking chamber (3) beyond the front opening (43).

8. An oven as claimed in any claim from 1 to 7, wherein ventilation means (50) are placed in such an arrangement as to suck in air through said top opening (5) of the frame (4) or to blow air through said bottom opening (6) of the frame (4) to increase the air flow through each cavity (23)

Patentansprüche

1. Ofen (1) umfassend:

- einen Rahmen (4), der eine Backkammer (3) definiert, wobei der Rahmen (4) eine frontseitige Öffnung (46) für den Zugang zur Backkammer (3) und eine oberseitige Öffnung (5) sowie eine unterseitige Öffnung (4) für den Luftdurchlass aufweist,
- eine Tür (2), die in angelenkter Weise in dem Rahmen (4) eingebaut und dazu geeignet ist, zwischen einer offenen Stellung zur Ermöglichung des Zugangs zur Backkammer (3) und einer geschlossenen Stellung zur Schließung der frontseitigen Öffnung (46) und Verhinderung des Zugangs zur Backkammer (3) bewegt zu werden,

wobei die Tür (2) eine Trägerstruktur (21) umfasst, die eine Außenscheibe (22a), eine Innenscheibe (22d) und wenigstens eine Zwischenscheibe (22b, 22c) zwischen der Außenscheibe (22a) und der Innenscheibe (22d) trägt, wobei die Scheiben (22a-22d) derart angeordnet sind, dass jeweilige Hohlräume (23a, 23b, 23c) zwischen ihnen definiert sind, wobei jeder Hohlraum seitlich durch die Trägerstruktur (21) definiert und an seiner Oberseite und seiner Unterseite offen ist, derart, dass in geschlossener Stellung der Tür (2) die oberseitige und die unterseitige Öffnung des Hohlraums der oberseitigen und der unterseitigen Luftdurchlassöffnung (5, 6) des Rahmens (4) zugewandt sind,

- LED-Tragmittel (30), die mit der Trägerstruktur (21) verbunden sind,
- LED-Leuchtmittel (40), die in den LED-Tragmitteln (30) eingebaut sind, um den hierdurch erzeugten Lichtstrahl in die Backkammer (3) zu richten, wenn die Tür (2) sich in geschlossener Stellung befindet, wobei die LED-Leuchtmittel (40) in dem Hohlraum (23a) angeordnet sind, der zwischen der Außenscheibe (22a) und der Zwischenscheibe (22b) gebildet wird, die sich neben der Außenscheibe (22a) befindet,

wobei die Trägerstruktur (21) zwei Pfosten (24, 25) umfasst, wobei jeder Hohlraum an seinen Seiten von den beiden Pfosten (24, 25) definiert ist, wobei jeder Pfosten (24, 25) jeweils gegenüberliegende Sitze (24a, 24b, 25a, 25b) zum Aufnehmen und Tragen der Scheiben umfasst,

- jeder Pfosten (24,25) umfasst einen Längsträger (26,28), der sich im Wesentlichen zwischen dem unteren Ende und dem oberen Ende der Tür (2) erstreckt, und einen Querträger (27, 29),

der an den Längsträger (26, 28) gekoppelt ist und ins Innere der Tür (2) in Richtung des Längsträgers (28) und des Querträgers des anderen Pfostens überkragt, wobei die Sitze (24a, 24b, 25a, 25b) in ihren jeweiligen Querträgern (27, 29) gebildet werden,
- der Längsträger (26, 28) ist hohl und weist einen inneren Kanal (26a) auf, der an seiner Oberseite und seiner Unterseite offen ist, mit jeweiligen oberseitigen und unterseitigen Öffnungen (26b, 26c), die bei geschlossener Stellung der Tür (2) den oberseitigen (5) und unterseitigen (6) Öffnungen des Rahmens (4) zugewandt sind,

dadurch gekennzeichnet, dass die LED-Tragmittel (30) mit den Längsträgern (26) verbunden sind und eine gewinkelte Struktur (31) umfassen, die einen Abschnitt (32) zum Befestigen an den Längsträgern (26) sowie einen Abschnitt (33) zum Tragen der LED-Leuchtmittel (40) aufweisen.

2. Ofen nach Anspruch 1, wobei die Sitze (24a, 24b) eines Pfostens (24) von den gegenüberliegenden Sitzen (25a, 25b) des anderen Pfostens (25) in einer Entfernung beabstandet sind, die etwas größer als die Breite der Zwischenpfosten (22b, 22c) zwischen den beiden Pfosten (24, 25) ist, derart, dass die Zwischenscheiben (22b, 22c) etwas Spiel zwischen den beiden Pfosten (24, 25) aufweisen.

3. Ofen nach Anspruch 2, wobei die Zwischenscheiben (22b, 22c) bei Raumtemperatur auf jeder Seite ein Spiel von weniger als ca. 5 mm, bevorzugt von weniger als ca. 3 mm, mehr bevorzugt von ca. 2 mm aufweisen.

4. Ofen nach Anspruch 1, wobei die gewinkelte Struktur (31) sich parallel zum Längsträger (26) entlang wenigstens eines Abschnitts der Länge des Längsträgers (26) erstreckt.

5. Ofen nach Anspruch 1 oder 2, wobei die LED-Leuchtmittel (40) entlang der gewinkelten Struktur (31) über einen Abschnitt der gewinkelten Struktur (31) angeordnet sind.

6. Ofen nach einem der Ansprüche 2 bis 5, wobei die gewinkelte Struktur (31) eine im Wesentlichen dreieckige Form aufweist, wobei die erste Seite den Befestigungsabschnitt (31) definiert, der parallel zu einer inneren Seite des Längsträgers (26) angeordnet ist, eine zweite Seite, die den Trägerabschnitt (32) definiert, der relativ zur ersten Seite geneigt ist, um den von den LED-Leuchtmitteln (40) erzeugten Lichtstrahl ins Innere der Backkammer (3) zu richten, wenn die Tür (2) sich in geschlossener Stellung befindet, und eine dritte Seite, die die erste und die zweite Seite (31, 32) verbindet und parallel zur Außenscheibe (22a) angeordnet ist.

7. Ofen nach einem der Ansprüche 1 bis 6, wobei die LED-Tragmittel (30) und die LED-Leuchtmittel (40) sich in einer derartigen Anordnung befinden, dass sie sich bei geschlossener Stellung der Tür (2) wenigstens teilweise außerhalb einer ideellen Verlängerung der Backkammer (3) jenseits der frontseitigen Öffnung (43) befinden.

8. Ofen nach einem der Ansprüche 1 bis 7, wobei die Belüftungsmittel (50) sich in einer Anordnung befinden, derart, dass Luft durch die oberseitige Öffnung (5) des Rahmens (4) angesaugt oder durch die unterseitige Öffnung (6) des Rahmens (4) ausgestoßen wird, um den Luftstrom durch jeden Hohlraum (23) zu erhöhen.

Revendications

1. Four (1) comprenant :

- un bâti (4) définissant une chambre de cuisson (3), ledit bâti (4) ayant une ouverture frontale (46) pour accéder à la chambre de cuisson (3), et une ouverture supérieure (5) et une ouverture inférieure (4) pour le passage d'air,
- une porte (2), qui est montée d'une manière articulée sur ledit bâti (4) et est adaptée pour se déplacer entre une position ouverte, pour permettre l'accès à la chambre de cuisson (3) et une position fermée, pour fermer l'ouverture frontale (46) et empêcher l'accès à la chambre de cuisson (3),
dans lequel ladite porte (2) comprend une structure de support (21) qui supporte un panneau extérieur (22a), un panneau intérieur (22d) et au moins un panneau intermédiaire (22b, 22c) entre le panneau extérieur (22a) et le panneau intérieur (22d), lesdits panneaux (22a-22d) étant agencés de manière à définir des cavités respectives (23a, 23b, 23c) entre eux, chaque cavité étant définie latéralement par la structure de support (21) et étant ouverte au niveau de son sommet et de son fond de manière que, quand la porte (2) est dans la position fermée, les ouvertures supérieure et inférieure de la cavité fassent face aux ouvertures de passage d'air supérieure et inférieure (5, 6) du bâti (4),
- des moyens de support de LED (30) connectés à la structure de support (21),
- des moyens d'éclairage à LED (40) montés sur les moyens de support de LED (30) pour diriger le faisceau de lumière généré par ceux-ci vers la chambre de cuisson (3), quand la porte (2)

est dans la position fermée, dans lequel les moyens d'éclairage à LED (40) sont placés dans la cavité (23a) formée entre le panneau extérieur (22a) et le panneau intermédiaire (22b) adjacent au panneau extérieur (22a),
- ladite structure de support (21) comprend deux montants (24, 25), chaque cavité étant définie au niveau de ses côtés par lesdits deux montants (24, 25), chaque montant (24, 25) comprenant des sièges opposés respectifs (24a, 24b, 25 a, 25b) pour recevoir et supporter les panneaux,
- chaque montant (24, 25) comprend un support longitudinal (26, 28) qui s'étend sensiblement entre l'extrémité inférieure et l'extrémité supérieure de la porte (2) et un support transversal (27, 29) qui est couplé au support longitudinal (26, 28), et est en porte-à-faux vers l'intérieur de la porte (2) dans la direction du support longitudinal (28) et du support transversal de l'autre montant, lesdits sièges (24a, 24b, 25a, 25b) étant formés dans leurs supports transversaux respectifs (27, 29)
- ledit support longitudinal (26, 28) est creux et a un canal intérieur (26a) ouvert à son sommet et à son bas, avec des ouvertures supérieure et inférieure respectives (26b, 26c) qui, quand la porte (2) est dans la position fermée, font face aux ouvertures supérieure (5) et inférieure (6) du bâti (4),

caractérisé en ce que lesdits moyens de support de LED (30) sont connectés au support longitudinal (26) et comprennent une structure angulaire (31) ayant une portion (32) pour la fixation au support longitudinal (26) et une portion (33) pour supporter les moyens d'éclairage à LED (40).

2. Four selon la revendication 1, dans lequel les sièges (24a, 24b) d'un montant (24) sont espacés des sièges opposés (25a, 25b) de l'autre montant (25) à une distance légèrement supérieure à la largeur des panneaux intermédiaires (22b, 22c) entre les deux montants (24, 25), de manière que les panneaux intermédiaires (22b, 22c) aient un certain dégagement entre les deux montants (24, 25).

3. Four selon la revendication 2, dans lequel lesdits panneaux intermédiaires (22b, 22c) ont un dégagement de moins d'environ 5 mm de chaque côté, de préférence de moins d'environ 3 mm, de manière davantage préférée d'environ 2 mm, à la température ambiante.

4. Four selon la revendication 1, dans lequel ladite structure angulaire (31) s'étend parallèlement au support longitudinal (26) le long d'au moins une portion de la longueur du support longitudinal (26).

5. Four selon la revendication 1 ou 2, dans lequel lesdits moyens d'éclairage à LED (40) sont agencés le long de la structure angulaire (31) sur une portion de ladite structure angulaire (31).

6. Four selon l'une quelconque des revendications 2 à 5, dans lequel ladite structure angulaire (31) a un profil sensiblement triangulaire, avec un premier côté définissant la portion de fixation (31), agencée parallèlement à un côté intérieur du support longitudinal (26), un deuxième côté définissant la portion de support (32), qui est inclinée par rapport au premier côté pour diriger le faisceau de lumière généré par les moyens d'éclairage à LED (40) vers l'intérieur de la chambre de cuisson (3) quand la porte (2) est dans la position fermée, et un troisième côté qui connecte les premier et deuxième côtés (31, 32) et est placé parallèlement au panneau extérieur (22a).

7. Four selon l'une quelconque des revendications 1 à 6, dans lequel lesdits moyens de support de LED (30) et lesdits moyens d'éclairage à LED (40) sont dans un agencement tel que, quand la porte (2) est dans la position fermée, ils soient au moins partiellement externes à une extension idéale de la chambre de cuisson (3) au-delà de l'ouverture frontale (43).

8. Four selon l'une quelconque des revendications 1 à 7, dans lequel des moyens de ventilation (50) sont placés dans un agencement tel qu'ils aspirent de l'air à travers ladite ouverture supérieure (5) du bâti (4) ou qu'ils soufflent de l'air à travers ladite ouverture inférieure (6) du bâti (4) pour augmenter le flux d'air à travers chaque cavité (23).

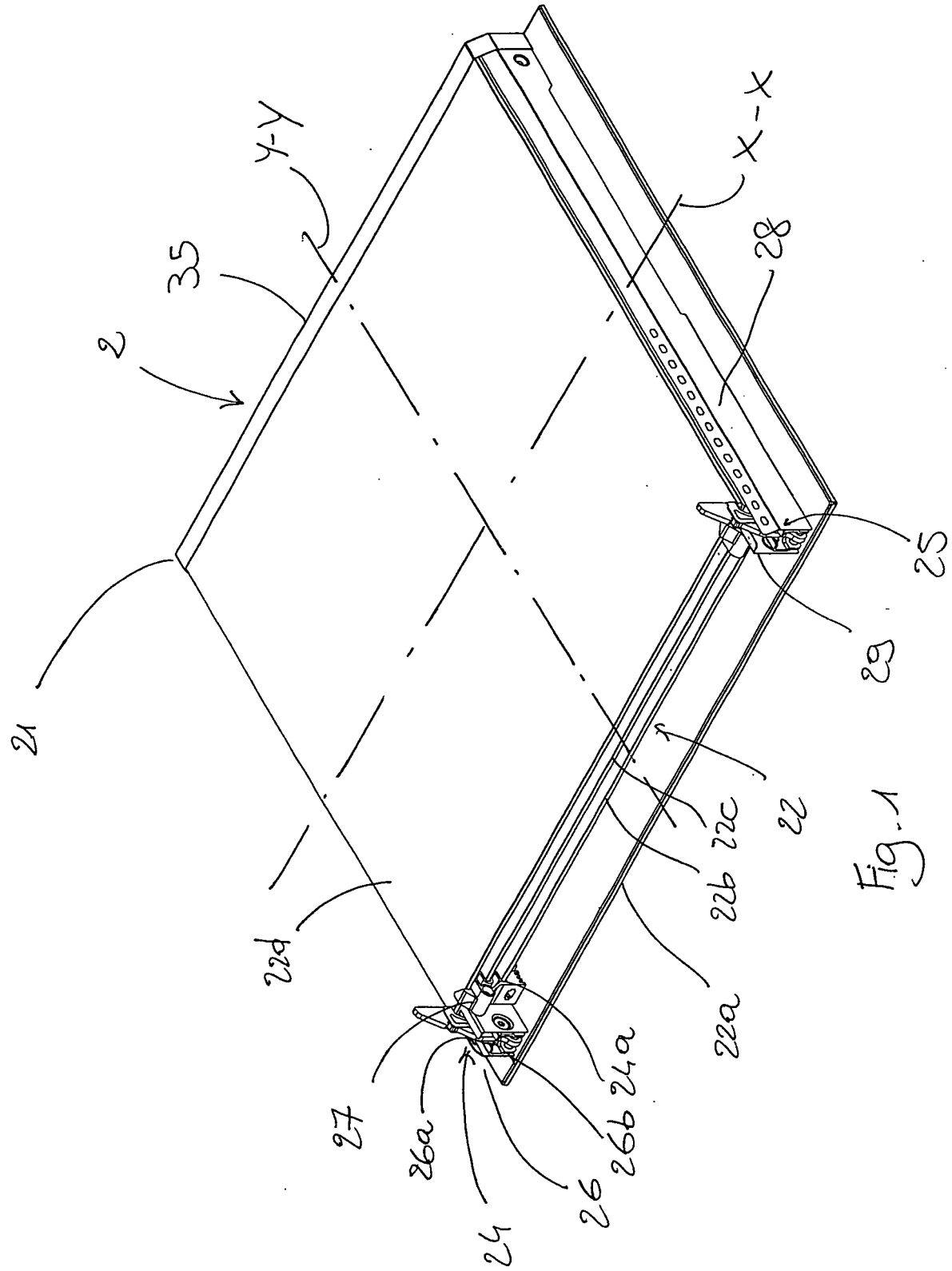


Fig. 1

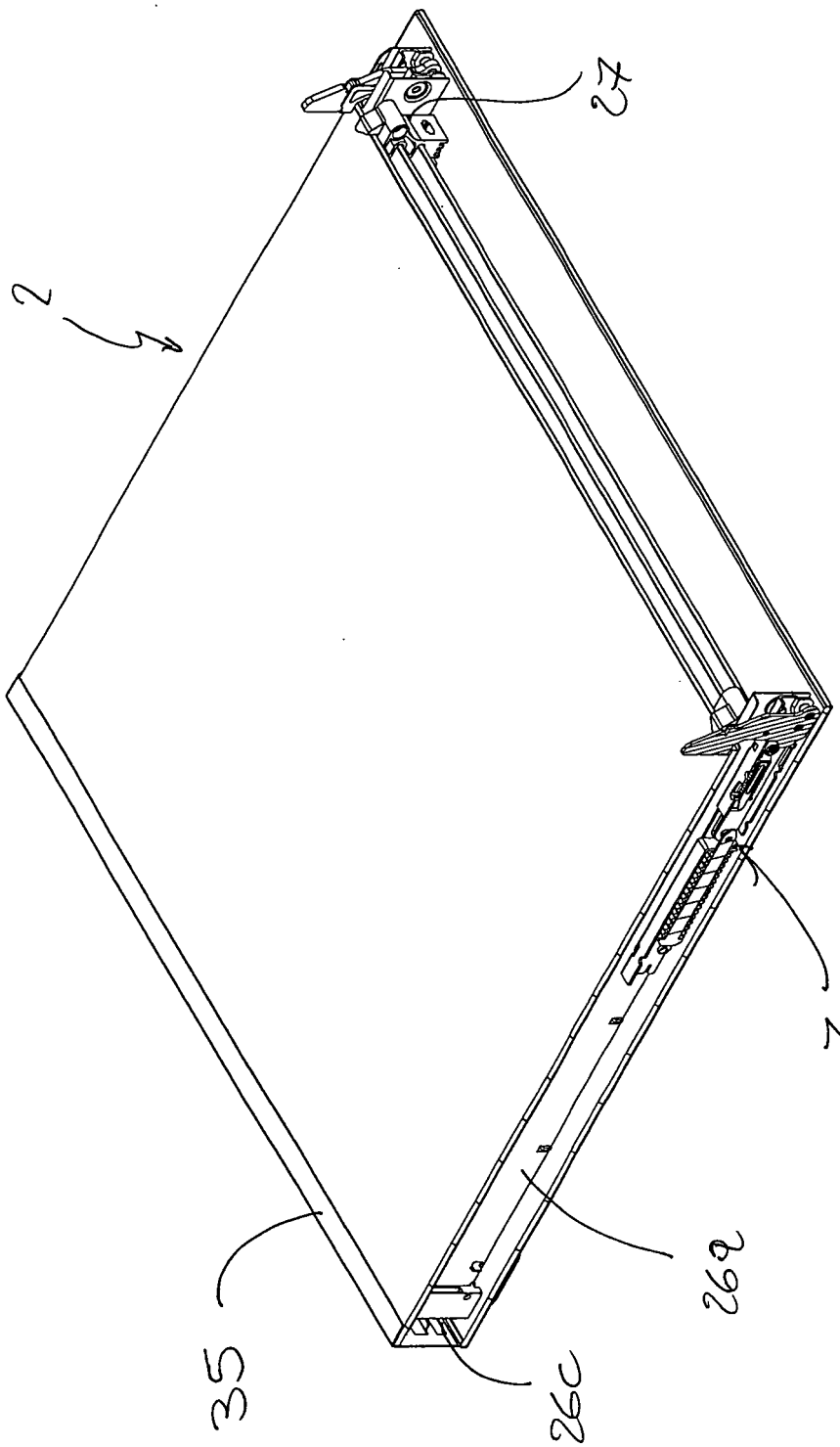


Fig. 2

Fig. 3

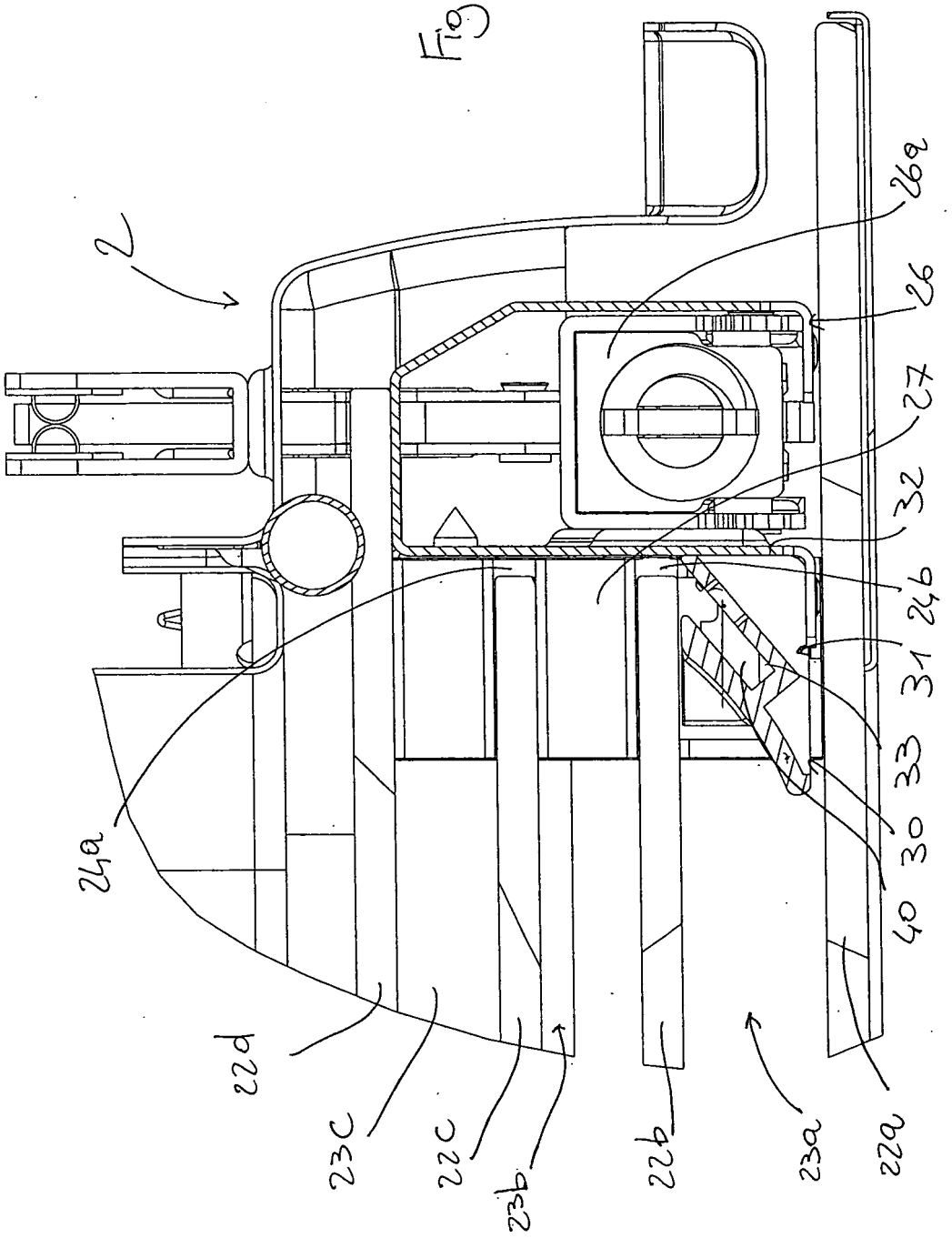
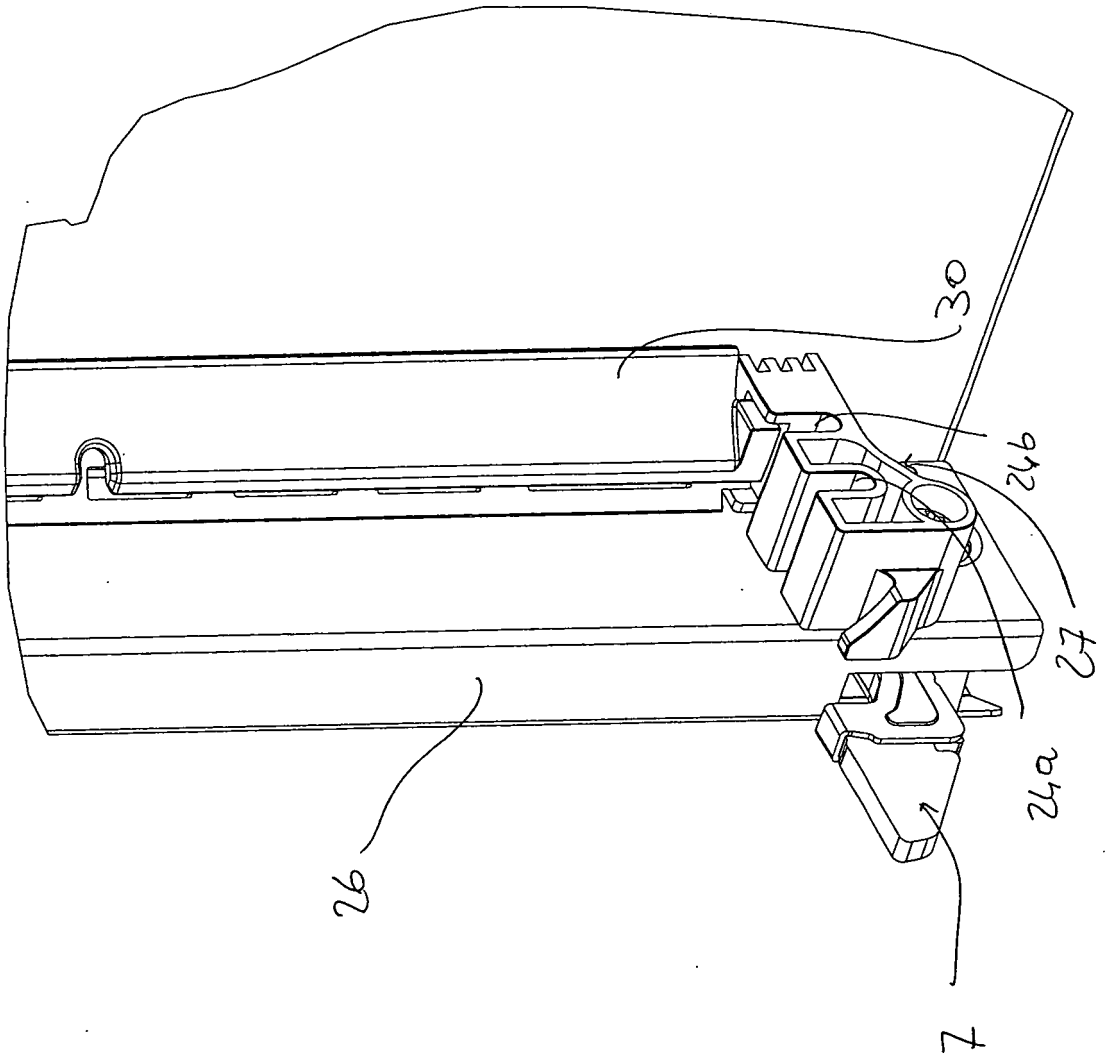


Fig. 4



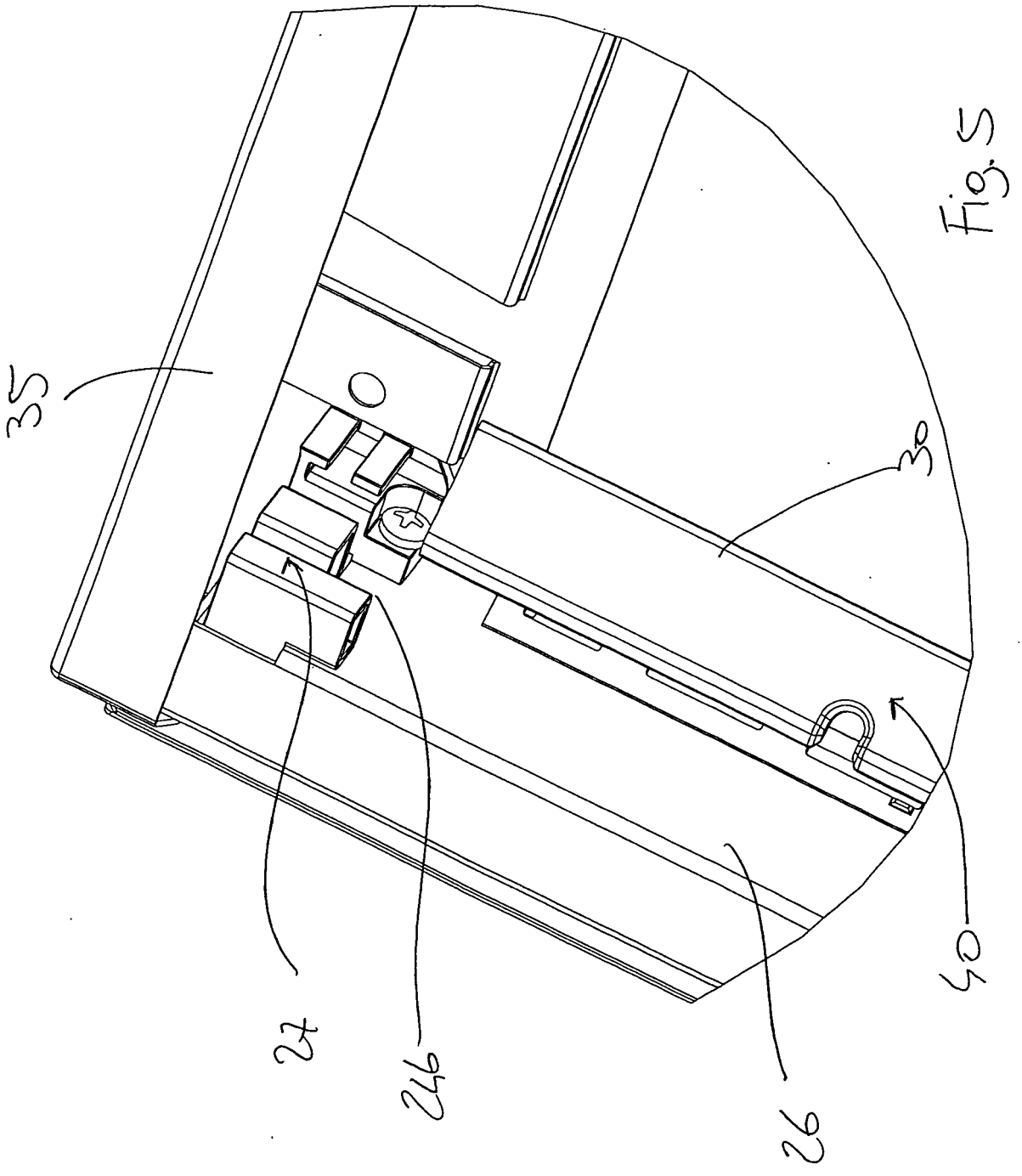


Fig. 5

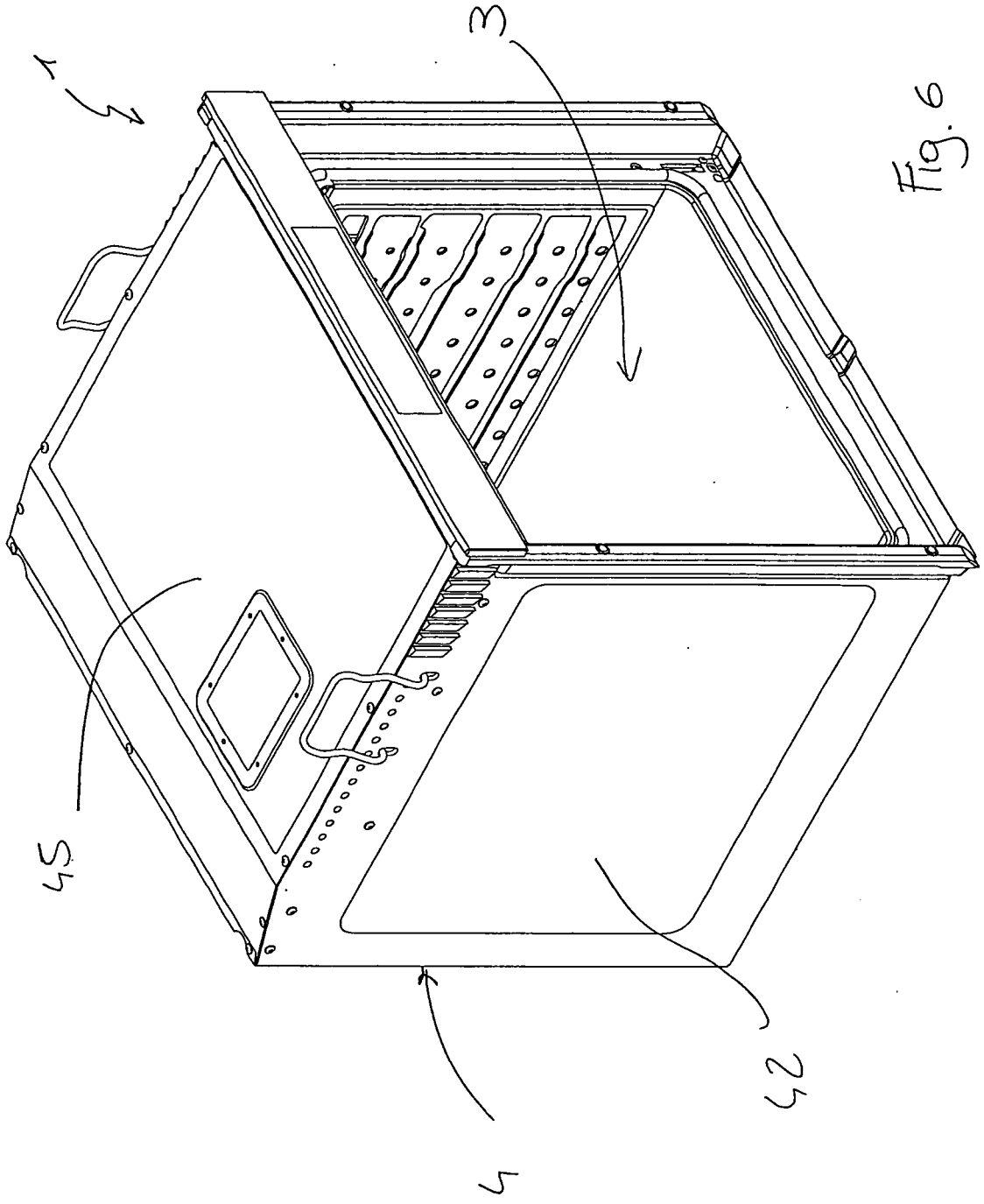


Fig. 6

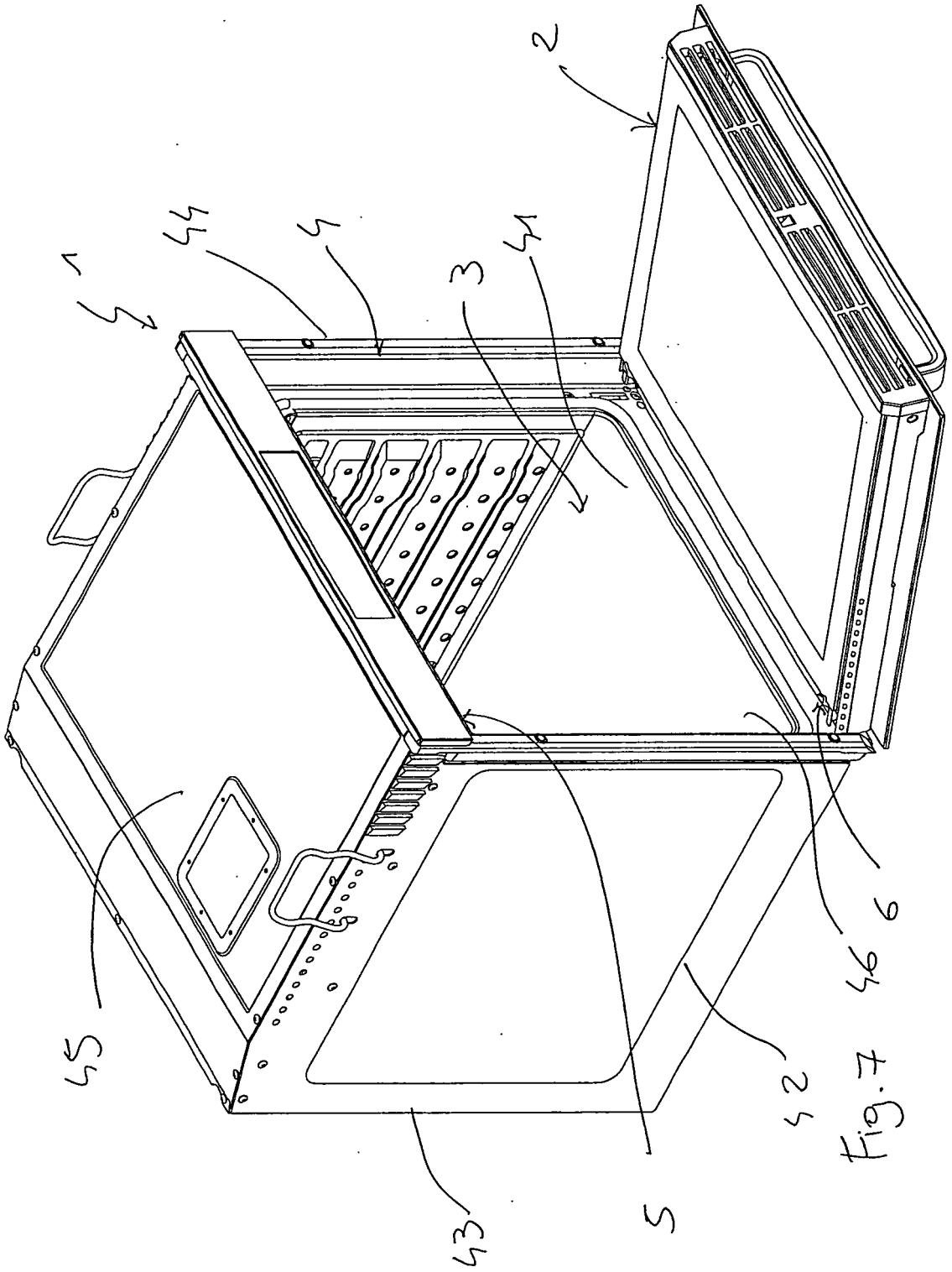


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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